

CLAIMS - We claim

1. A method for plating metals onto the surface of a semiconductor workpiece, the semiconductor workpiece having a processed surface; the processed surface being patterned to include coated surface portions and seed layer portions; said coated surface portions being coated with a photoresist or other nonconductive coating which overlies portions of said seed layer; said seed layer portions including exposed seed layer areas wherein portions of the seed layer are exposed for processing, comprising:

selecting an electrode assembly having an electrode contact which is surrounded by an electrode boot;

engaging coated surface portions on the processed surface using the electrode boot, said electrode boot bearing against the coated surface portions to form a seal thereagainst which inhibits entry of plating liquid into a sealed space which is enclosed within said seal by said electrode boot and the processed surface of the semiconductor workpiece;

enclosing a via within said seal, said via being present on the processed surface and having exposed seed layer portions therein for making electrical contact to the seed layer;

contacting said seed layer through said via with said electrode contact to form an electrically conductive connection between the electrode assembly and said seed layer, said contacting being performed

1 by said electrode contact using a contact face which bears upon the  
2 seed layer and is enclosed within said sealed space;

3 wetting a processed surface of the semiconductor workpiece with  
4 the plating liquid;

5 passing electrical current through the electrode and plating bath  
6 to cause electroplating to occur upon exposed seed layer areas of the  
7 processed surface of the semiconductor workpiece;

8 excluding plating liquid from the sealed space to substantially  
9 reduce any plating action about the contact.

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11 2. A method for plating copper onto the surface of a  
12 semiconductor workpiece, the semiconductor workpiece having a  
13 processed surface; the processed surface being patterned to include  
14 coated surface portions and seed layer portions; said coated surface  
15 portions being coated with a photoresist or other nonconductive coating  
16 which overlies portions of said seed layer; said seed layer portions  
17 including exposed seed layer areas wherein portions of the seed layer  
18 are exposed for processing, comprising:

19 selecting an electrode assembly having an electrode contact which  
20 is surrounded by an electrode boot;

21 engaging coated surface portions on the processed surface using  
22 the electrode boot, said electrode boot bearing against the coated  
23 surface portions to form a seal thereagainst which inhibits entry of  
24 plating liquid into a sealed space which is enclosed within said seal by

